

Designer Guide for Nighttime Pavement Work

May 24, 2007

BACKGROUND:

Night work provides excellent relief for maintenance of traffic (MOT) congestion issues when applied consistent with the Permitted Lane Closure System (PLCS). Night work requires more diligent attention to detail to ensure that quality work results.

This guide provides assistance in selecting design and construction practices best suited for nighttime work. Included in this guide are additional construction requirements designers can employ to ensure a quality product. Use of some or all of these items is strongly recommended.

Technical assistance with these guidelines is available by contacting any of the following individuals:

Mack Braxton - Work Zone Traffic Engineer, Office of Traffic Engineering (614-752-8829)
Dave Powers - Asphalt Materials Engineer, Office of Materials Management (614-275-1387)
Faour Alfaour - Pavement Construction Engineer, Office of Construction Administration (614-644-6622)
Aric Morse - Pavement Design Engineer, Office of Pavement Engineering (614-995-5994)
Dave Miller - Pavement Design Engineer, Office of Pavement Engineering (614-995-5991)

GUIDELINES:

I. Nighttime Pavement Work Selection Considerations

A. Daytime Lane Closures Not Allowed due to Traffic

1. The Office of Traffic Engineering Permitted Lane Closure System (PLCS) available at: https://dotaw100.dot.state.oh.us/plcm/plcm_web.jsp will determine if night work is required. This should be the primary and most frequent means of requiring night work. All plans should have a note referencing the PLCS for determining closures for work on primary routes.

Plan Note Example:

Daytime Lane Closure and Time Restriction

IR-75 IS A RESTRICTED LANE CLOSURE ROUTE DUE TO HIGH TRAFFIC VOLUMES. DURING THE PROJECT DURATION, SINGLE LANES IN EACH DIRECTION MAY BE CLOSED ANYTIME **NOT**

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DESIGNATED “**LANE CLOSURE NOT PERMITTED**” AS LISTED ON THE ODOT WEBSITE AT:

https://dotaw100.dot.state.oh.us/plcm/plcm_web.jsp

WITH THE EXCEPTION THAT THERE SHALL BE NO LANE CLOSURES ON ANY SECTION OF THE PROJECT BEFORE 9:00 PM ON SUNDAY NIGHTS. AT NO TIME IS THE CONTRACTOR PERMITTED TO CLOSE BOTH LANES IN THE SAME DIRECTION.

2. A District may have another method for using traffic data to determine when lane closures are allowed. This method must meet or exceed the PLCS and this method must be on record with the Office of Traffic Engineering according to policy 516-003(P) section II.A.
3. Contract requirements for complying with the PLCS requirements need to be stringent enough to compel compliance.

Plan Note Example:

Lane Closure Liquidated Damages

A LANE CLOSURE IS DEFINED AS ANY RESTRICTION OF A LANE OF TRAFFIC INCLUDING, BUT NOT LIMITED TO, SET-UP AND TEAR-DOWN OF TRAFFIC CONTROL ZONES. THE CONTRACTOR WILL BE ASSESSED LIQUIDATED DAMAGES IN THE AMOUNT OF \$2,500.00 PER FIFTEEN (15) MINUTE INTERVAL THAT A LANE IS CLOSED TO TRAFFIC DURING TIMES DESIGNATED AS “**LANE CLOSURE NOT PERMITTED**” AS STATED IN THESE PLANS AND ON THE ODOT WEBSITE AT:

https://dotaw100.dot.state.oh.us/plcm/plcm_web.jsp

B. Municipal Concerns

1. Municipalities may have ordinances that impact night work time frames. Such ordinances need to be addressed in the project development process with the local public agency (LPA). These ordinances should be followed as closely as possible in setting up the project unless the ordinance restricts or conflicts with the PLCS. In general, when interstate or primary routes require nighttime work due to the PLCS requirements, then the PLCS would prevail.

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In this case, the LPA must be consulted to determine legislation and agreement requirements, if any.

It is preferable to have exceptions to local ordinances approved during project development and any time restrictions included in the contract documents. In the event it is determined that a potential ordinance exception request may be exercised by the contractor to facilitate construction, provide contract language to that effect.

Plan Note Example:

Approval of Local Municipalities

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN APPROVAL FROM THE LPA FOR LOCAL ORDINANCE WAIVERS.

2. In the absence of an ordinance, municipalities may have a time of day preference for performing construction operations such as daytime hours for residential or nighttime hours for business access or other traffic related concerns. This being the case, requiring nighttime work beyond the PLCS requirements should be considered only when daytime closures present local traffic congestion issues that cannot be mitigated otherwise. District approval of a municipal request is required, and should be on record with the office of Traffic Engineering.

C. Other Exceptions - Use a plan note requiring nighttime pavement work to accommodate the following needs:

1. Specific instances of heavy daytime truck traffic may make nighttime pavement work desirable even when the PLCS does not require it. This should be determined during project development.
2. Specific instances of businesses outside of municipalities may make nighttime pavement work desirable when the businesses may be adversely impacted by daytime work. This should be determined during project development.

II. Construction Bid Item, Plan or Proposal Note Considerations for a Quality Job

Designers must determine the applicable proposal notes for nighttime pavement work, and include the appropriate references in the plan package submission.

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The following provides specific guidance on supplemental items for nighttime pavement work for design consideration. Additional guidance on the following items can be obtained by contacting technical experts noted on page 1.

- A. MOT setup and removal** - It is critical the designer indicate in the plans that the start to finish durations required to set up and remove MOT items for restricting lanes is part of the PLCS time. Designers should be aware that the MOT setup and removal time impacts pavement activity productivity. As a result, additional construction materials or procedures may require consideration for inclusion in the plans in order to construct the project within the PLCS time frames (i.e. Proposal Note 463 Joint Repair using Rapid Strength Concrete with Maturity Testing, also see Item F below entitled “Full Depth Concrete Repairs”).
- B. C&MS 446 Acceptance** - Require acceptance of surface or intermediate course asphalt pavement according to C&MS Item 446. This not only assures proper density necessary for asphalt pavement durability but helps assure asphalt mat compaction uniformity which leads to improved durability. Exceptions would be those projects not meeting the minimum requirements for C&MS Item 446 in the Pavement Design & Rehabilitation Manual.
- C. Longitudinal Paving Joints** - Require Proposal Note 460 Night Paving, 401.17 Sealing of Cold Joints.
- D. Material Transfer Device (MTD)** - Use of an MTD provides an asphalt mix that is uniform in composition and temperature. This is necessary in recognition that nighttime paving conditions create difficulties in on-site visual inspection and plant mix monitoring that may negatively impact final product quality.

Require Proposal Note 461 Night Paving using Material Transfer Device for all surface courses during nighttime paving. It is not necessary to include PN 461 for intermediate courses or shoulder pavement.

Do not use PN 461 for two lane pavements, projects with numerous intersections, small projects of less than 1 lane mile or other projects with other such limiting features.

- E. Smoothness requirements** - Smoothness specifications can be applied to any pavement lift thickness. Since nighttime paving can produce rougher riding pavements, it is desirable to use smoothness requirements.
 - 1. Use Proposal Note 420 Surface Smoothness Requirements for Pavements where possible in accordance with the designer note.

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2. Use Proposal Note 470 Thin Lift Asphalt Surface Smoothness Requirements for overlays and mill-and-fill night paving projects with pavement thicknesses less than 2-1/4 inches. PN 470 may not be desirable for projects with legal speeds less than 40 mph, projects with numerous intersections, small projects of less than 1 lane mile in length or projects with time or traffic restrictions resulting in conditions that make obtaining smoothness data impractical.

F. Full Depth Concrete Repairs - In some cases the PLCS severely limits the available productive construction time for the contractor. For nighttime concrete repairs, include Proposal Note 463 Joint Repair using Rapid Strength Concrete with Maturity Testing for modifying Item 255 Class FS concrete requirements to include maturity monitoring. This has proven to be very beneficial in maximizing available work during the PLCS restricted time. Item 255, Full Depth Pavement Removal and Rigid Replacement, As Per Plan, must be specified in the plans.